



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,971	11/04/2003	Muthiah Manoharan	CHEM0005US.P1	4943
88395	7590	11/25/2009	EXAMINER	
Woodcock Washburn LLP			MCGARRY, SEAN	
Cira Centre, 12th Floor				
2929 Arch Street			ART UNIT	PAPER NUMBER
Philadelphia, PA 19104			1635	
			MAIL DATE	DELIVERY MODE
			11/25/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/700,971	Applicant(s) MANOHARAN ET AL.	
	Examiner Sean R. McGarry	Art Unit 1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-6,9-13,21,24,25,36,37 and 101 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4-6, 9-13, 21, 24, 25, 36, 37, and 101 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/19/09 has been entered.

Claims 1, 4-6, 9-13, 21, 24, 25, 36, 37, and 101 are pending and under examination.

The new grounds of rejection is in view of applicants amendments to the claims on 10/19/09. Applicants arguments of 10/19/09 are moot in view of the new rejection below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1635

Claims 1, 4-6, 9-13, 17, 21, 24, 25, 36, 37, and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuschl et al [US 2004/0259247], Schwarz et al [Molecular Cell, Vol. 10: 537-548, 9/2002] and Manoharan et al [Monoharan, M. Antisense Drug Technology, Principles, Strategies, and Applications, Crooke, S. T. ed., Marcel Dekker, New York 2001, Chapter 16, pages 391-467, cited by applicant].

The claimed invention is as clearly set forth in the claims.

Tuschl et al have taught the use of siRNA molecules for the inhibition of a desired target nucleic acid. It has been taught that the preferred length of these double stranded RNAs is 19-25 nucleotides. It has been taught at paragraph 15 and 179-181 what positions of an siRNA molecule are important for function and what areas are modifiable such as 5' and 3' ends. It has been taught to use siRNA in cell culture to determine gene function, for example (see paragraphs 28 and 29, for example). Tuschl et al have taught at paragraphs 28-33 that carrier mediated delivery is an option for siRNA introduction into cells (see paragraph 33, for example). Tuschl et al do not specifically teach conjugate moieties of cholesterol.

Manoharan has taught the use of Lipidic nucleic acids where it has been taught the use of moieties such as cholesterol linked to terminal ends, backbones or bases of antisense oligonucleotides where it is asserted these provide for more efficient antisense administration to cells. It has been taught that attachment at the 2' position of an oligonucleotide should minimize interference with hybridization. Monoharan et al has shown that it was well established at the time of invention to utilize cholesterol as a means to mediate cellular delivery of oligonucleotides.

Art Unit: 1635

Schwartz et al have shown that 3' modification of the antisense strand of an siRNA does not abolish RNAi activity.

One in the art would clearly combine the teachings of Tuschl, Schwarz et al, and Manoharan et al to make the instant invention since Tuschl has taught the use of siRNA in cells. Manoharan provide a teaching of how to make and use lipidic moieties in oligonucleotides for enhanced cellular delivery and Tuschl et al have taught locations where siRNAs can be modified, where Schwarz et al have shown that the 3' end of the antisense strand can be modified. The prior art teaches that the use of such conjugates was known in the art to enhance delivery of nucleic acid into cells, for example. The determination of which strand or both strands to add substituents would clearly have been a matter of optimization as the general use of substituents as claimed was established in the art at the time of invention. Tuschl and Schwarz et al have provided a clear basis for the locations of modification in a siRNA. The claimed invention appears to amount to the use of a known oligonucleotide delivery method [cholesterol conjugation] and a known oligonucleotide that would be delivered to cells[siRNA].

The invention as a whole would therefore have been *prima facie* obvious to one in the art at the time the invention was made.

Art Unit: 1635

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean R. McGarry whose telephone number is (571) 272-0761. The examiner can normally be reached on M-Th (6:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tracy Vivlemore can be reached on (571) 272-2914. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sean R McGarry
Primary Examiner
Art Unit 1635

/Sean R McGarry/
Primary Examiner, Art Unit 1635